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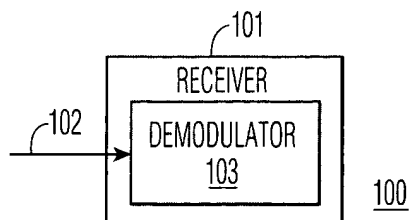


FIG. 1

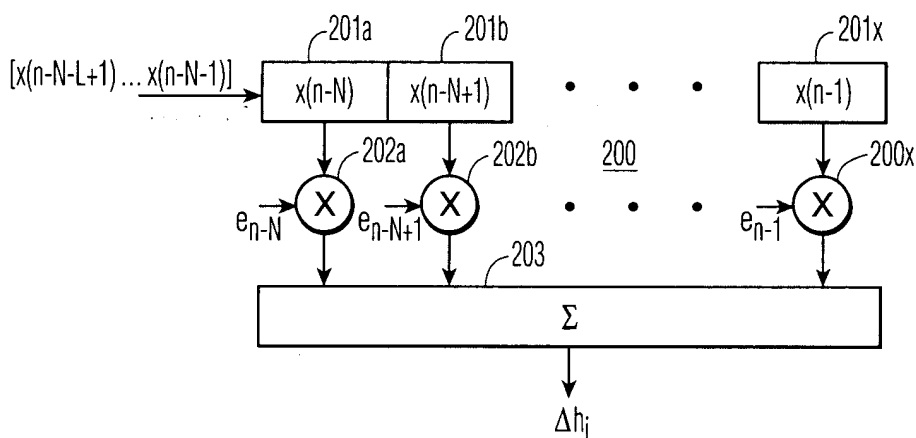


FIG. 2A

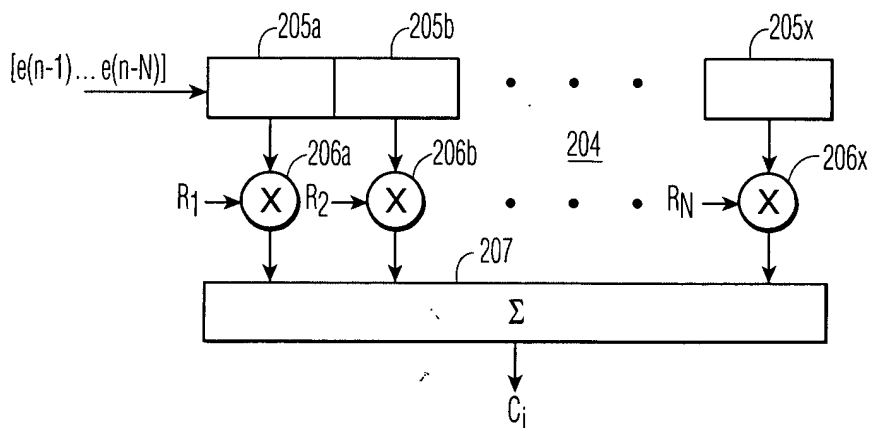


FIG. 2B

[illegible]

The diagram illustrates a neural network architecture for a control system. The input x is fed into two parallel paths. The upper path consists of a block \bar{h}_f (labeled 200) followed by a summation node $+$ (labeled 210). The lower path consists of a block \bar{e} (labeled 215a) followed by a block \tilde{R}_x (labeled 212a). The output of \tilde{R}_x is fed into the summation node $+$. The output of the summation node $+$ is y , which is fed into a block $f(\cdot)$ (labeled 213) to produce the desired output d . The output y is also fed into a block $g(\cdot)$ (labeled 214) to produce the error signal e_i . The error signal e_i is fed into a block \bar{e} (labeled 215b) and a block \bar{h}_b (labeled 211). The output of \bar{h}_b is fed into the summation node $+$. A dashed line labeled 300 connects the input x to the block \bar{h}_b . The error signal e_i is also fed into the block \bar{e} (labeled 215a).

FIG. 3

The diagram illustrates a neural network architecture for a control system. It includes several interconnected blocks and signal paths:

- Block 200:** A block labeled \bar{h}_f that receives input x and output y from block 210. It also receives a dashed feedback signal from block 215a.
- Block 210:** A summation node (+) that receives inputs from block 200, block 211, and block 214. Its output is y .
- Block 213:** A block labeled $f(\cdot)$ that receives input y and produces output d .
- Block 211:** A block labeled \bar{h}_b that receives input y and output d from block 214. It also receives a dashed feedback signal from block 215b.
- Block 214:** A block labeled $g(\cdot)$ that receives inputs y and d . It produces output e_j and a signal e_i that goes to block 401.
- Block 212a:** A block labeled \tilde{R}_x that receives input e_i and output e_j from block 214. It also receives a dashed feedback signal from block 215a.
- Block 401:** A small block that receives input e_i and output e_j from block 214. It produces output e_i that goes to block 212a.
- Block 215a:** A block labeled \bar{e} that receives input x and output e_i from block 214. It produces output e_i that goes to block 212a.
- Block 215b:** A block labeled \bar{e} that receives input x and output e_j from block 214. It produces output e_j that goes to block 211.
- ENABLE:** A control signal that is connected to the inputs of blocks 212a, 401, and 215b.

The diagram illustrates a control system 500. The input x is split into two paths. One path goes through block 200 (labeled 501a) to a summing junction 210. The other path goes through block 215a (labeled 501c) to a summing junction. The output of block 200 is y , which is also the output of the summing junction 210. The output y is fed back through block 213 (labeled 501b) to produce d , and through block 214 (labeled 501b) to produce e_i . Block 211 (labeled 501b) receives d and outputs h_b to the summing junction 210. Block 215b (labeled 501d) receives e_i and outputs \bar{e} to the summing junction. Block 215a (labeled 501c) also receives \bar{e} and outputs \bar{e} to the summing junction. The summing junction 210 is labeled 210. The blocks 200, 210, 211, 213, and 214 are enclosed in a dashed box labeled 500. The blocks 215a and 215b are enclosed in dashed boxes labeled 501c and 501d respectively.

FIG. 5

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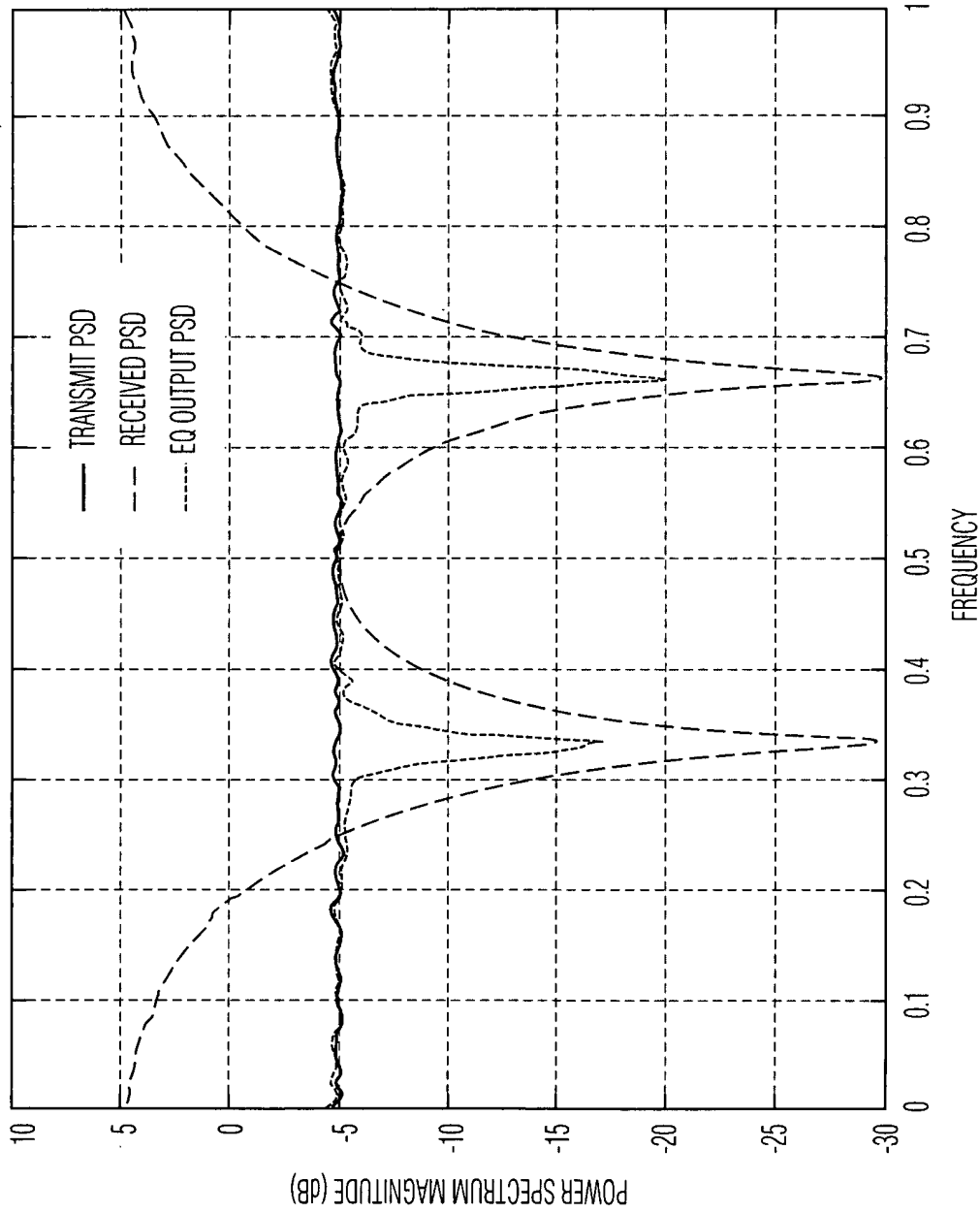


FIG. 6

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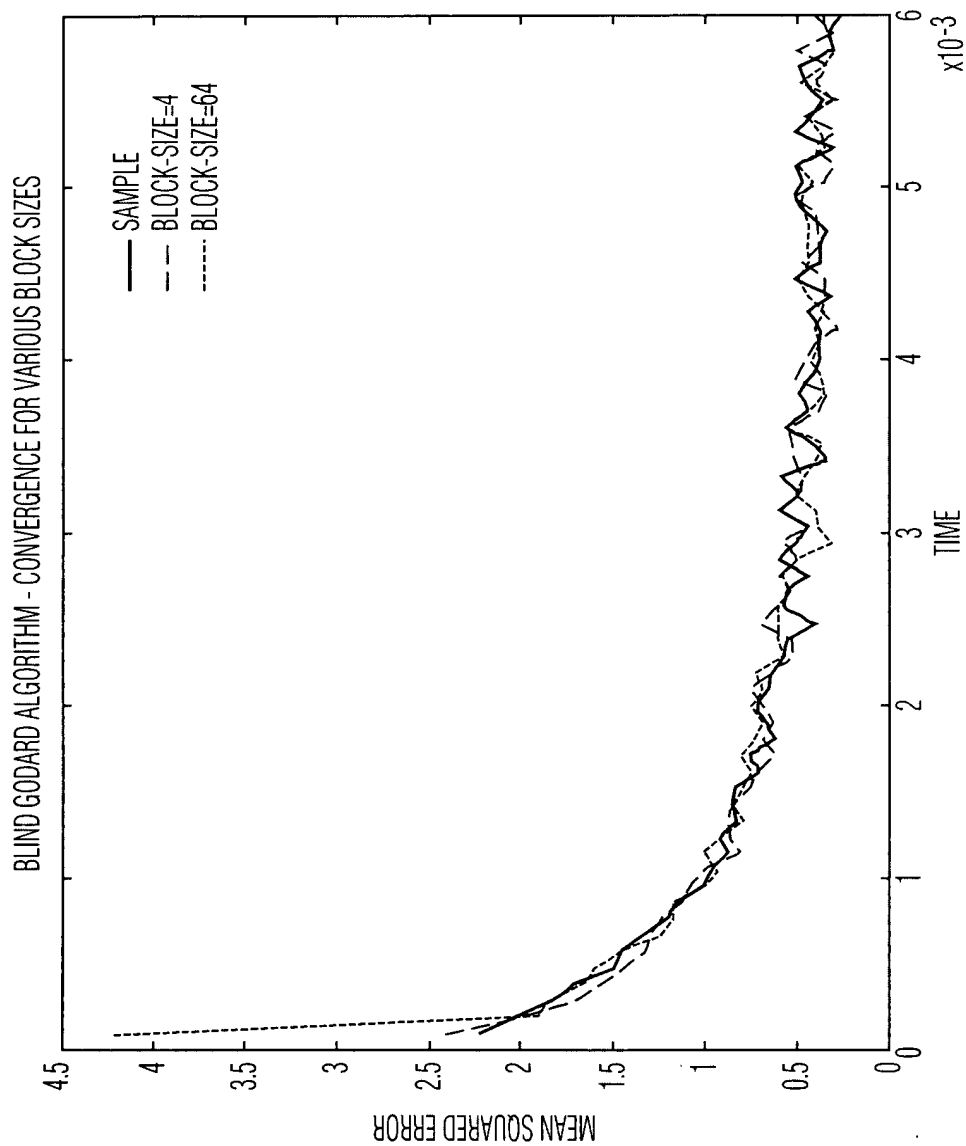


FIG. 7

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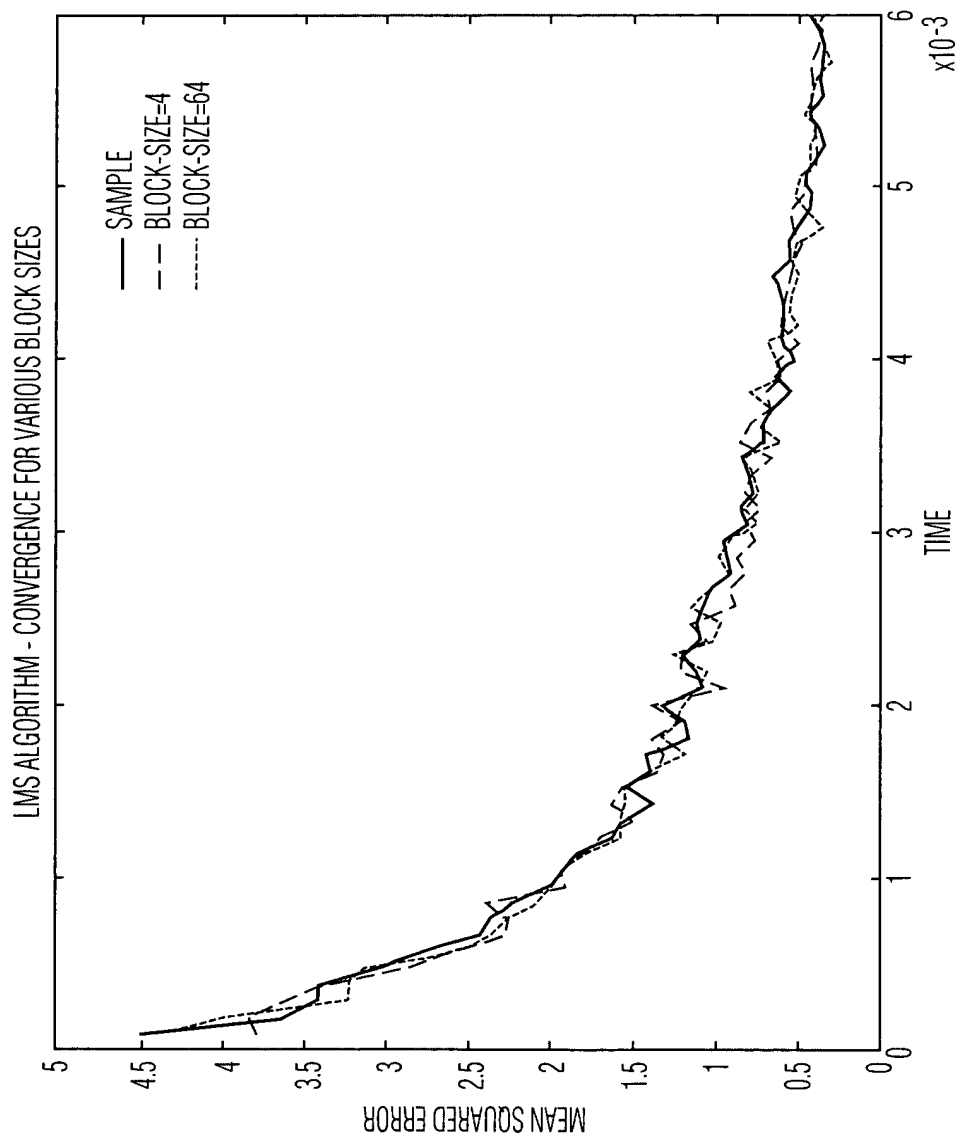


FIG. 8

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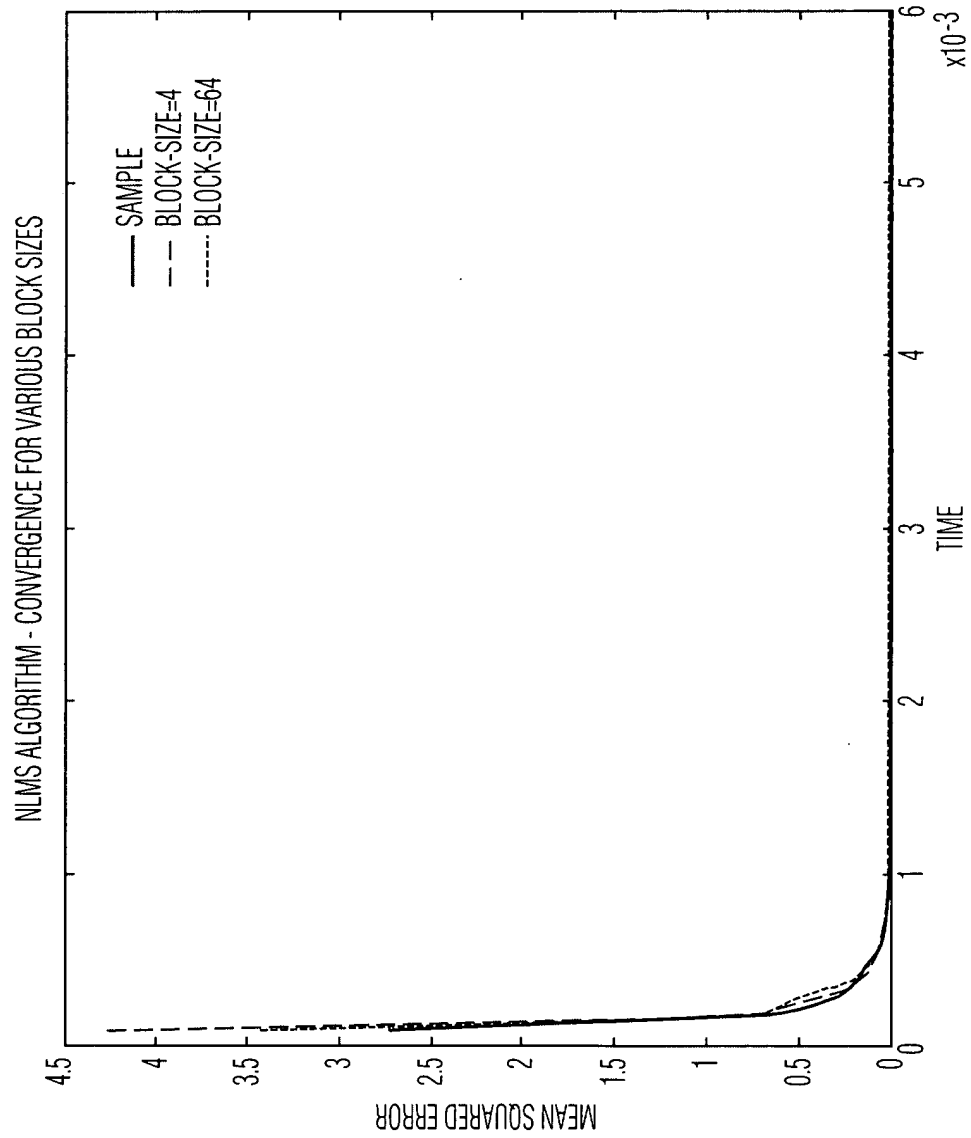


FIG. 9

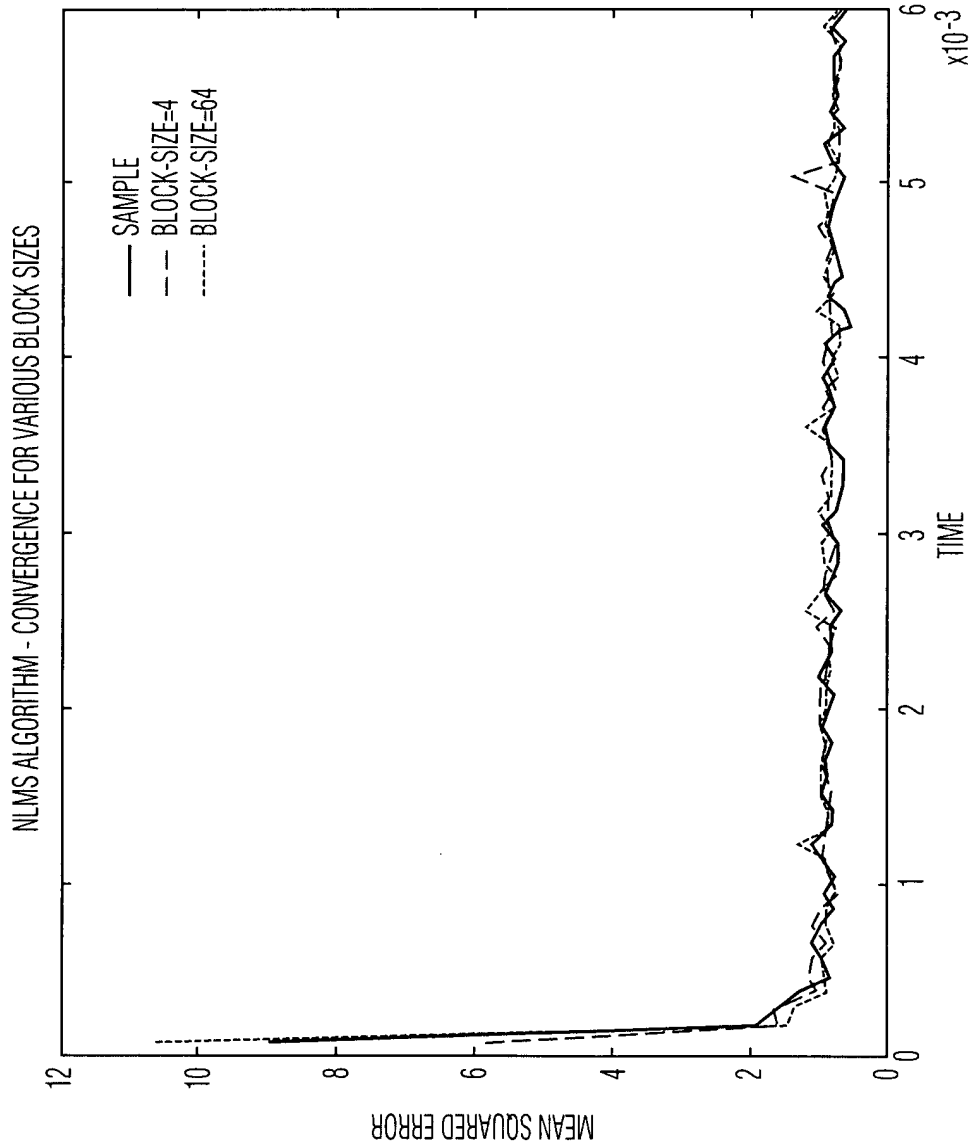


FIG. 10